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EXAMINER
STRAUB, G

11M1/1116

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ART UNIT

PAPER NUMBER

1103

DATE MAILED: 11/16/93

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This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

This application has been examined Responsive to communication filed on _____ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- Notice of References Cited by Examiner, PTO-892.
- Notice re Patent Drawing, PTO-948.
- Notice of Art Cited by Applicant, PTO-1449.
- Notice of Informal Patent Application, Form PTO-152.
- Information on How to Effect Drawing Changes, PTO-1474.
- _____

Part II SUMMARY OF ACTION

1. Claims 1-8 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. Claims _____ have been cancelled.

3. Claims _____ are allowed.

4. Claims 1-8 are rejected.

5. Claims _____ are objected to.

6. Claims _____ are subject to restriction or election requirement.

7. This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. Formal drawings are required in response to this Office action.

9. The corrected or substitute drawings have been received on _____ Under 37 C.F.R. 1.84 these drawings are acceptable. not acceptable (see explanation or Notice re Patent Drawing, PTO-948).

10. The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been approved by the examiner. disapproved by the examiner (see explanation).

11. The proposed drawing correction, filed on _____, has been approved. disapproved (see explanation).
of German 4035089

12. Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has been received not been received
 been filed in parent application, serial no. _____; filed on _____

13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. Other _____

EXAMINER'S ACTION

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Claims 1-8 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. Claim 1 is alternative in that it sets forth two different modes for generating the hydrosol droplets.

B. In claim 2, it is unclear if the viscosity specified is required or not in view of "can".

C. Claim 3 is alternative in view of the preferably clause. It is also unclear which of the two ranges specified are to be used since the claim does not particularly point out the range to be used.

D. In claim 4, it is unclear what gases applicants regard as gases such as ammonia containing air, nitrogen or argon.

Gases such as methane, fluorine, etc can be included.

E. Claim 4 is alternative in view of the and/or.

F. In claim 4, it is unclear where the separate tenside solution is to be used and where the foam generated is to be used.

G. In claim 6, it would appear necessary that the beds be separated from the ammonia solution prior to drying.

H. It is unclear which claim at least one in claim 8 refers to. It is noted that if claim 8 is to be a multiple dependent claim then it must refer to the prior claims in the alternative

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only.

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

The "person having ordinary skill" in this art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this case reasonably reflect this level of skill.

Claims 1 and 6-8 are rejected under 35 U.S.C. § 103 as being unpatentable over Bezzi et al.

Bezzi et al. fairly shows the instant process to include droplet formation by vibration, the use of a reactive atmosphere to pregel, the provision of a surfactant (tenside) in the solution, foam generation for breaking the fall of the droplets separation of the droplets from the ammonia solution, drying and calcining the product. Note abstract, figure, col. 1, lines 15-

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30, col. 2, lines 10-20, col. 3, lines 19-22 and the claim.

While Bezzi et al. does not recite alumina bead manufacture, it would be obvious to one of ordinary skill in the art in view of col. 1, lines 8-9 and 49-60 that Bezzi teaches to employ his process to make spherical particles for catalysts etc. to use the process to make alumina spherical particles because of the known use of spherical particles of alumina as catalyst and catalyst supports. The numeric limitation of claims 2, 3, 5, 6 and 8 are a matter of routine optimization of the process of Bezzi to obtain the desired particle size. *In re Moctovich*, 144 USPQ 38; *In re Boesch*, 205 USPQ 215 (219) CAFC 1980.

Claims 1-6 and 8 are rejected under 35 U.S.C. § 103 as being unpatentable over Bezzi et al. as applied to claims 1-6 and 8 above, and further in view of Takami and Sanchez et al.

While Bezzi et al. does not explicitly recite the use of his spherical particles as catalyst or recite the specific production of aluminum oxide beads, he does fairly suggest the use of his spherical product for catalysts (col. 1, lines 6-9).

The production of aluminum oxide beads via a drop forming methods is shown by Sanchez et al. (claim 1) and Takami et al. (claim 1). The formation of aluminum oxide beads using the method of Bezzi et al. would have been obvious to one of ordinary skill in the art because the production of aluminum oxide beads for catalysts is fairly shown by Takami et al. and Sanchez et al.

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and because Bezzi teaches formation of beads suitable for catalysts.

Claims 1-8 are rejected under 35 U.S.C. § 103 as being unpatentable over Bezzi et al. taken alone or with Takami et al. or Sanchez et al. as applied to claims 1-6 and 8 above, and further in view of Landis or DeHaven et al.

While Bezzi et al. does not show the use of a ring nozzle for the formation of the droplets, as shown by Landis and DeHaven et al. nozzle rings are conventional in the formation of spherical droplets by drop formation and solidification and would be obvious to use in the process of Bezzi because of the expected result of increased production. Further since cylindrical towers are normal construction, a nozzle ring would make more efficient use of the tower volume than a rectangular array of nozzles.

While this combination does not teach the supply ammonia inside the nozzle ring, in view of the requirement that each of the droplets formed enter the liquid gelling medium of Bezzi with the same degree of gelatin to obtain a uniform content, the provision of an ammonia supply inside the nozzle ring would have been obvious to one of ordinary skill in the art because the interior (center) of the ring would be equidistant from the nozzles and would avoid the air curtain masking induced by the falling droplet with the resultant lack of ammonia gas content uniformity that would occur with only exterior ammonia addition.

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from one side of the apparatus.

Wace, Stowell et al., Kallenbach and Laine are cited for other spherical particle formation via falling droplet procedures and their discussion on vibrating orifice plates to control droplet size.

No claims are allowed.

Any inquiry concerning this communication should be directed to Gary P. Straub at telephone number (703) 308-0661.



GARY P. STRAUB
PRIMARY PATENT EXAMINER
ART UNIT 113

G. Straub:ke
November 12, 1993